

Smp#	Event#	Stn#	Org Name Kit#	Date	Time	Rep	AL Dis
<b>Howardsville</b>							
467201402070945	467.001	467	DOW	0 2/7/2014	9:45:00	1	15
467201403050930	467.002	467	DOW	0 3/5/2014	9:30:00	1	21
467201403211630	467.003	467	DOW	0 3/21/2014	16:30:00	1	23
467201403220930	467.004	467	DOW	0 3/22/2014	9:30:00	1	0
467201403251645	467.005	467	DOW	0 3/25/2014	16:45:00	1	23
467201404041800	467.007	467	DOW	0 4/4/2014	18:00:00	1	23
467201404050900	467.008	467	DOW	0 4/5/2014	9:00:00	1	20
467201404091800	467.009	467	DOW	0 4/9/2014	18:00:00	1	33
467201404100715	467.01	467	DOW	0 4/10/2014	7:15:00	1	17
467201404100900	467.011	467	DOW	0 4/10/2014	9:00:00	1	27
467201404171830	467.012	467	DOW	0 4/17/2014	18:30:00	1	33
467201404180700	467.013	467	DOW	0 4/18/2014	7:00:00	1	27
467201404251815	467.014	467	DOW	0 4/25/2014	18:15:00	1	51
467201404260630	467.015	467	DOW	0 4/26/2014	6:30:00	1	55
467201405010945	467.016	467	DOW	0 5/1/2014	9:45:00	1	32
467201407011310	467.018	467	DOW	0 7/1/2014	13:10:00	1	57
467201408011305	467.019	467	DOW	0 8/1/2014	13:05:00	1	62
467201409050900	467.02	467	DOW	0 9/5/2014	9:00:00	1	43
467201411070830	467.022	467	DOW	0 11/7/2014	8:30:00	1	37
467201412050945	467.023	467	DOW	0 12/5/2014	9:45:00	1	26

#### A68

103201402071030	103.3	103	DOW	0 2/7/2014	10:30:00	1	48
103201403051015	103.301	103	DOW	0 3/5/2014	10:15:00	1	49
103201403211715	103.302	103	DOW	0 3/21/2014	17:15:00	1	80
103201403221015	103.303	103	DOW	0 3/22/2014	10:15:00	1	60
103201403251745	103.304	103	DOW	0 3/25/2014	17:45:00	1	93
103201403260900	103.305	103	DOW	0 3/26/2014	9:00:00	1	81
103201404041845	103.306	103	DOW	0 4/4/2014	18:45:00	1	103
103201404051000	103.307	103	DOW	0 4/5/2014	10:00:00	1	86
103201404091845	103.308	103	DOW	0 4/9/2014	18:45:00	1	93
103201404100800	103.309	103	DOW	0 4/10/2014	8:00:00	1	100
103201404100930	103.31	103	DOW	0 4/10/2014	9:30:00	1	65
103201404171915	103.311	103	DOW	0 4/17/2014	19:15:00	1	111
103201404180745	103.312	103	DOW	0 4/18/2014	7:45:00	1	79
103201404251845	103.313	103	DOW	0 4/25/2014	18:45:00	1	110
103201404260715	103.314	103	DOW	0 4/26/2014	7:15:00	1	115
103201405011015	103.315	103	DOW	0 5/1/2014	10:15:00	1	58
103201407011245	103.317	103	DOW	0 7/1/2014	12:45:00	1	79
103201408011215	103.318	103	DOW	0 8/1/2014	12:15:00	1	108
103201409051045	103.319	103	DOW	0 9/5/2014	10:45:00	1	70
103201410020925	103.32	103	DOW	0 10/2/2014	9:25:00	1	90
103201411070930	103.321	103	DOW	0 11/7/2014	9:30:00	1	60
103201412051045	103.322	103	DOW	0 12/5/2014	10:45:00	1	56

AL Tot	AS Dis	AS Tot	CA Dis	CA Tot	CD Dis	CD Tot	CU Dis	CU Tot	FE Dis
19	0	0	56447	56568	0.51	0.59	0	0	119
21	0	0	51896	52745	0.51	0.55	0	0	85
27	0	0	52561	55617	0.38	0.5	0	0	77
28	0	0	50329	57328	0.47	0.45	0	0	98
32	0	0	49928	51245	0.41	0.46	0	0	69
34	0	0	49409	50183	0.44	0.45	0	0	83
29	0	0	52254	52719	0.36	0.45	0	0	74
189	0	0	44771	44996	0.49	0.56	0	3.2	125
57	0	0	44536	44960	0.47	0.43	0	0	60
54	0	0	42813	43523	0.41	0.43	0	0	35
91	0	0	41110	41820	0.63	0.67	0	3.3	103
74	0	0	39071	42937	0.59	0.52	2	3.2	50
245	0	0	30844	31056	1.15	1.29	12.6	27.4	32
290	0	0	27730	31176	1.15	1.34	15.8	26.1	68
70	0	0	39382	40110	0.78	0.87	9.1	9.3	28
236	0	0	22344	22404	0.86	0.92	3	5.3	16
276	0	0	32221	33281	0.77	0.81	2.5	4.6	31
87	0	0	63184	64821	0.76	0.85	0	2.6	0
45	0	0	40179	40716	0.54	0.58	2.4	3.4	23
28	0	0	49936	51939	0.45	0.47	2.3	2.2	92
194	0	0	59973	65723	1.82	1.8	2.3	8.2	69
304	0	0	60348	60951	2.11	2.26	2.6	12.6	27
627	0	0	61570	61889	4.03	4.22	3.4	22.7	20
552	0	0	61816	61633	3.97	4.11	3.8	22.9	38
745	0	0	59935	60165	4.84	4.97	5	29.3	22
609	0	0	62051	62472	4.27	4.37	6.1	26.6	64
607	0	0	60310	60818	4.46	4.58	5.2	26.4	45
639	0	0	60474	61273	4.51	4.5	6.6	29.4	89
1122	0	0	52954	53222	3.91	4.17	7.6	45.4	111
545	0	0	50255	53655	3.64	3.71	7.2	23.7	123
384	0	0	52158	55106	3.44	3.58	17.4	58.3	90
601	0	0	45948	49135	3.25	3.31	7.7	24.7	32
410	0	0	44026	45625	2.57	2.7	7.1	19.6	53
335	0	0	29999	31106	1.65	1.77	11.9	24.2	46
379	0	0	29426	29415	1.64	1.77	12.4	24.1	71
287	0	0	39298	40383	2.12	2.33	5.3	18.2	21
204	0	0	22005	22617	0.9	0.91	3.2	5.3	38
459	0	0	32186	34501	0.89	0.95	3.8	7	67
120	0	0	64672	66714	1.1	1.2	3.3	5.9	42
316	0	0	48627	49517	1.29	1.32	5.8	11.6	32
125	0	0	43578	43785	1.15	1.27	3.2	6.1	20
140	0	0	53592	54072	1.27	1.48	2.4	7	47

FE Tot	PB Dis	PB Tot	MG Dis	MG Tot	MN Dis	MN Tot	SE Dis	SE Tot	ZN Dis
157	0	0	3450	3459	252.7	255.5	0	0	242.5
194	0	0	3202	3185	283.4	291.2	0	0	244.1
104	3.4	4.1	2890	3216	210.4	214.8	0	0	200
154	4.1	4.6	2564	3342	206.6	216.4	0	0	227.9
100	3.7	4.6	2533	2609	195.5	199.9	0	0	195.3
103	3.8	5.2	2589	2537	191	192.9	0	0	195.7
96	3	3.8	3074	3071	203.2	202.1	0	0	219.5
394	3.1	10.4	2716	2776	348.6	370.7	0	0	236.4
114	0	4.6	2716	2755	208.5	215.4	0	0	208.2
113	3.2	4.3	2301	2312	203.1	203.2	0	0	201.8
196	0	5.6	2715	2668	261.4	266.6	0	0	254.7
100	4	4.6	2347	2762	148.9	156.6	0	0	237.5
219	3.4	16.8	2012	2051	267.6	306.9	0	0	399
226	3.7	8.6	2176	1983	243.4	270.2	0	0	426.5
77	0	4.9	2645	2652	186.2	196.3	0	0	342.8
92	3.1	5.7	1596	1603	355.4	374	0	0	273.1
103	0	5	2456	2543	287.5	301.2	0	0	187.4
29	0	0	3357	3458	331.2	341.8	0	0	224.1
25	0	3.4	3090	3153	196.7	201.1	0	0	224.5
144	3.4	3.9	3517	3391	243.7	234.9	0	0	243.7
377	0	0	3429	3934	2346.6	2579.3	0	0	534.7
492	0	3.1	3854	3849	3023.7	3035.8	0	0	641
543	4	10.5	4136	4134	4601.2	4664.8	0	0	1018.6
392	4.3	8.3	4051	4034	4491.2	4492.4	0	0	1061.7
507	4.3	11.7	4117	4140	5774.8	5852.3	0	0	1179.9
408	3.9	8.5	4165	4133	4898.4	4909.8	0	0	1125.8
410	4.3	8.2	4058	4058	4862.6	4965.8	0	0	1086.1
441	4.8	8.9	3848	3800	4708.8	4902.9	0	0	1179.3
1087	4.6	25.5	3434	3529	4871.6	4853.7	0	0	1058.5
464	4.5	9.6	3220	3615	3409.3	3595.4	0	0	972.5
331	4.2	8	3310	3721	3671	3686.3	0	0	923
375	4.4	10	2777	3401	3338.5	3322.5	0	0	834.2
274	3.8	6.6	2945	3090	2215	2493.3	0	0	705.3
270	4	12.4	1913	1868	1033.5	1042.2	0	0	470.9
279	3.7	9.8	2100	2119	940.9	978.5	0	0	490.8
250	4	7	2515	2587	1731.8	1820.2	0	0	633.2
118	3.1	5.3	1648	1703	493.2	519.5	0	0	239.3
307	3.5	7.8	2291	2559	880.7	946.7	0	0	229.3
163	0	0	3310	3397	928	961.2	0	0	270
129	0	0	3031	3106	699.8	716.3	0	0	333.8
166	0	4.1	3351	3365	1095	1101.2	0	0	348.7
250	0	5.7	3702	3675	1444.8	1518.5	0	0	416.6

ZN Tot	NA Dis	NA Tot	Calc Hard	Calc Hard	TK Dis	K Tot	Comment
249.4	934	929	155	155	532	548	
250.2	1017	882	143	145	533	507	
200.9	988	884	143	152	639	520	Special study
230.5	739	1048	136	157	445	658	Special study
198.8	739	765	135	139	475	490	Special study
198.1	764	744	134	136	482	467	Special study
218.7	926	933	143	144	585	586	Special study
255.4	823	802	123	124	636	621	Special Study
211.9	789	808	122	124	518	506	Special study
209.2	696	686	116	118	462	461	Special study
270.7	738	737	114	115	519	651	Special study
237.7	650	776	107	119	469	562	Special study
452.1	485	530	85	86	432	617	Special study
431.3	576	498	78	86	576	420	Special study
354.5	701	662	109	111	681	508	Special study
275.8	308	297	62	63	238	228	
208.6	601	591	91	94	0	0	Turbid, raining past 3 days
235.9	730	752	172	176	0	0	
231.8	709	722	113	115	291	295	low flow nutrient
239.8	880	809	139	144	556	454	
576.6	941	1066	164	180	659	569	
703.1	1038	1030	167	168	606	612	
1091.3	1071	1063	171	172	723	742	Special study
1114.8	1077	1062	171	171	695	692	
1262.7	1027	1046	167	167	694	761	Special Study
1182.8	1127	1096	172	173	739	724	Special study
1148.4	1070	1051	167	169	707	676	Special study
1219.4	1028	1011	167	169	653	649	Special study
1203.8	881	930	146	147	710	932	Special study
1009.3	1014	884	139	149	790	610	Special study
1006.1	921	1049	144	153	610	827	
883.5	689	871	126	137	588	703	Special study
731.5	800	843	122	127	523	634	Special study
503.7	457	434	83	85	434	430	Special study
524.1	537	540	82	82	509	521	Special study
699.5	630	643	108	111	471	498	Special study
252.9	336	349	62	63	0	0	
264.3	583	423	90	97	0	0	Turbid, raining past 3 days
297.3	762	790	175	181	0	0	
372.1	593	633	134	136	0	0	September Rain and snow
371.4	808	800	123	123	378	370	
449	910	870	149	150	490	443	

## River Watch Data 2014

Zinc	Howardsville				A68
Zinc		Flows	Dis Zn Conc. At Howard	Dis Zn Load at Howard	Flows
Zinc	Date	(cfs)	(ug/l)	(lbs/day)	(cfs)
Zinc	2/7/2014	17	243	22	
Zinc	3/5/2014	16	244	21	
Zinc	3/21/2014	21	200	23	
Zinc	3/22/2014	18	228	22	
Zinc	3/25/2014	21	195	22	
Zinc	3/26/2014	21			
Zinc	4/4/2014	27	196	28	
Zinc	4/5/2014	21	220	25	
Zinc	4/9/2014	33	236	42	40
	4/10/2014	45	208	51	58
	4/10/2014	45	202	49	58
	4/17/2014	54	255	74	61
	4/18/2014	69	238	88	84
	4/25/2014	139	399	299	180
	4/26/2014	158	427	363	215
	5/1/2014	67	343	124	86
	7/1/2014	355	273	523	478
	8/1/2014	50	187.4	51	85
	9/5/2014	50	224.1	60	53
	11/7/2014	32	224.5	39	54
	12/5/2014	25	243.7	33	
	85th Percentile		284		

Cadmium	Howardsville				A68
Cadmium		Flows	Dis Cd Conc.	Dis Cd Load	Flows
Cadmium	Date	(cfs)	(ug/l)	(lbs/day)	(cfs)
Cadmium	2/7/2014	17	0.51	0.05	
Cadmium	3/5/2014	16	0.51	0.04	
Cadmium	3/21/2014	21	0.38	0.04	
Cadmium	3/22/2014	18	0.47	0.05	
Cadmium	3/25/2014	21	0.41	0.05	
Cadmium	3/26/2014	21			
	4/4/2014	27	0.44	0.06	
	4/5/2014	21	0.36	0.04	
	4/9/2014	33	0.49	0.09	40
	4/10/2014	45	0.47	0.11	58
	4/10/2014	45	0.41	0.10	58
	4/17/2014	54	0.63	0.18	61
	4/18/2014	69	0.59	0.22	84

4/25/2014	139	1.15	0.86	180
4/26/2014	158	1.15	0.98	215
5/1/2014	67	0.78	0.28	86
7/1/2014	355	0.86	1.65	478
8/1/2014	50	0.77	0.21	85
9/5/2014	50	0.76	0.20	53
11/7/2014	32	0.54	0.09	54
12/5/2014	25	0.45	0.06	
85th Percentile		0.79		

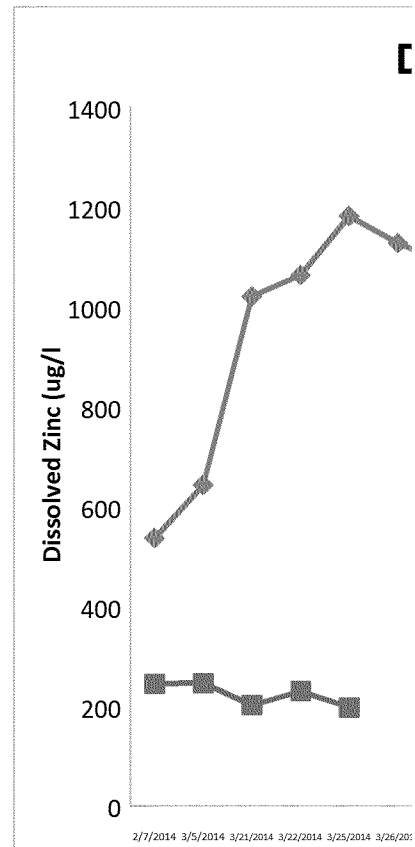
Manganese		Howardsville		A68
Manganese		Flows	Dis Mn Conc.	Flows
Manganese	Date	(cfs)	(ug/l)	(cfs)
Manganese	2/7/2014	17	253	23
Manganese	3/5/2014	16	283	24
Manganese	3/21/2014	21	210	24
Manganese	3/22/2014	18	207	20
Manganese	3/25/2014	21	196	22
Manganese	3/26/2014	21		
	4/4/2014	27	191	28
	4/5/2014	21	203	23
	4/9/2014	33	349	62
	4/10/2014	45	209	51
	4/10/2014	45	203	49
	4/17/2014	54	261	76
	4/18/2014	69	149	55
	4/25/2014	139	268	201
	4/26/2014	158	243	207
	5/1/2014	67	186	67
	7/1/2014	355	355	680
	8/1/2014	50	288	78
	9/5/2014	50	331	89
	11/7/2014	32	197	34
	12/5/2014	25	244	33
85th Percentile			294	

Hardness		Howardsville		A68
Hardness		Flows	Hardness	Flows
Hardness	Date	(cfs)	(ug/l)	(cfs)
Hardness	2/7/2014		152	
Hardness	3/5/2014		164	
Hardness	3/21/2014		156	
Hardness	3/22/2014		158	
Hardness	3/25/2014		154	
	3/26/2014		156	
	4/4/2014		152	

4/5/2014	140
4/9/2014	128
4/10/2014	132
4/10/2014	134
4/17/2014	124
4/18/2014	122
4/25/2014	94
4/26/2014	88
5/1/2014	120
7/1/2014	66
8/1/2014	96
9/5/2014	132
10/2/2014	104
11/7/2014	130
12/5/2014	138

Ave. Hardness:	129
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Dis Zn Conc. At A68 (ug/l)	Dis Zn Load at A68 (lbs/day)	Percent Load (Howard load/ A68 load)
535		
641		
1019		
1062		
1180		
1126		
1086		
1179		
1059	228	18%
973	304	17%
923	289	17%
834	274	27%
705	319	28%
471	457	65%
491	569	64%
633	294	42%
239	617	85%
229.3	105	48%
270	77	78%
348.7	102	38%
416.6		
1086		



Dis Cd Conc. (ug/l)	Dis Cd Load (lbs/day)	Percent Load (Howard load/ A68 load)
1.82		
2.11		
4.03		
3.97		
4.84		
4.27		
4.46		
4.51		
3.91	0.84	10%
3.64	1.14	10%
3.44	1.08	9%
3.25	1.07	17%
2.57	1.16	19%

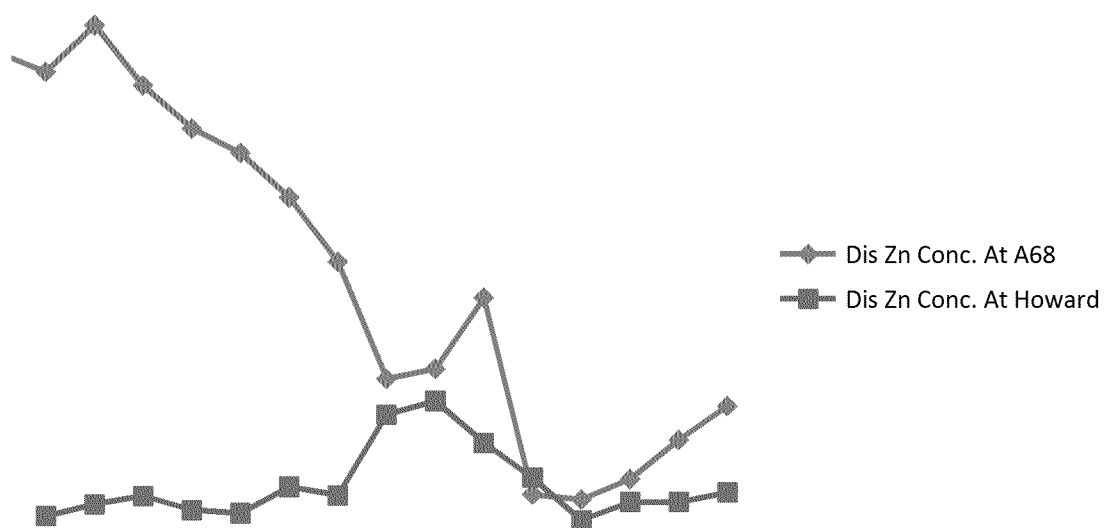
1.65	1.60	54%
1.64	1.90	52%
2.12	0.98	29%
0.9	2.32	71%
0.89	0.41	51%
1.1	0.31	65%
1.15	0.33	28%
1.27		
4.27		

Dis Mn Conc. (ug/l)	Dis Mn Load (lbs/day)	Percent Load (Howard load/ A68 load)
2347		
3024		
4601		
4491		
5775		
4898		
4863		
4709		
4872	1051	6%
3409	1066	5%
3671	1148	4%
3339	1098	7%
2215	1003	6%
1034	1003	20%
941	1091	19%
1732	803	8%
493	1271	54%
881	404	19%
928	265	34%
1095	319	11%
1445		
4863		

Hardness (ug/l)	Percent Load (Howard load/ A68 load)
184	
90	
188	
188	
194	
190	
176	

200  
148  
136  
156  
148  
138  
98  
92  
132  
70  
102  
138  
100  
142  
154  
  
144

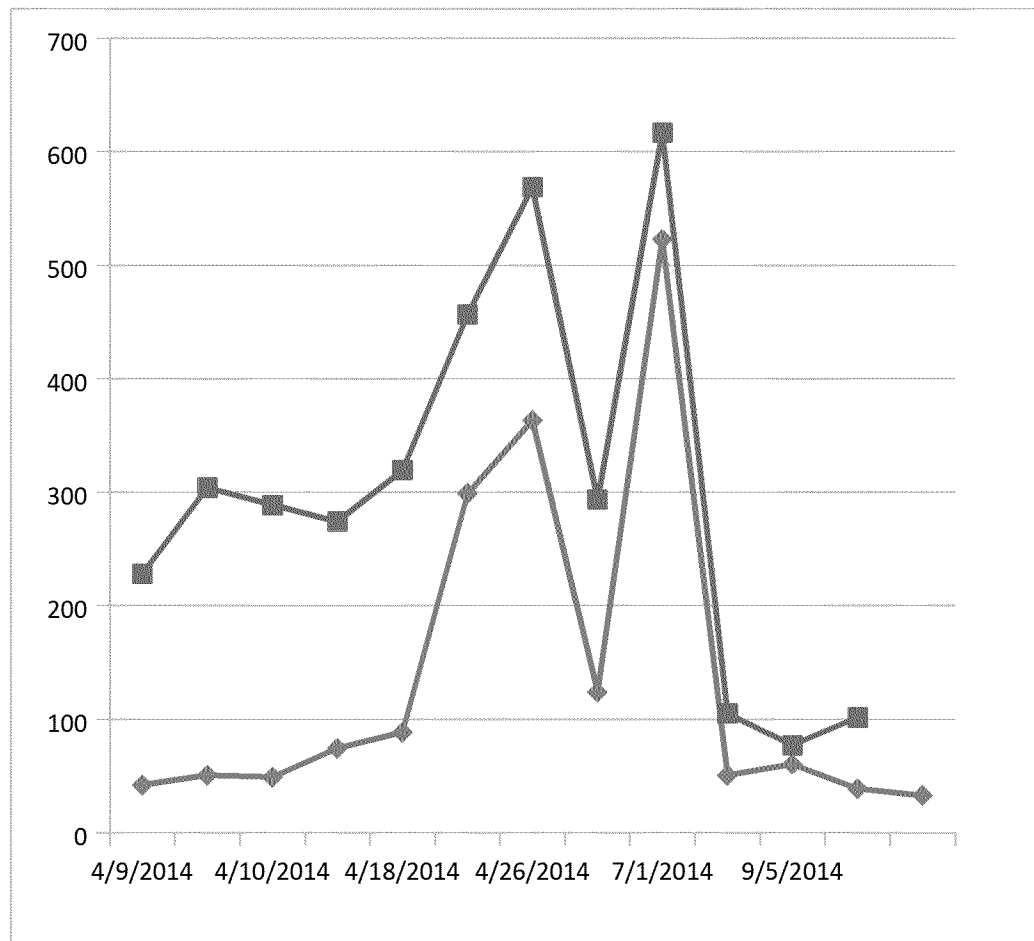
## Dis Zinc Conc. in Animas abv Silverton



A 4/4/2014 4/5/2014 4/9/2014 4/10/2014 4/10/2014 4/17/2014 4/18/2014 4/25/2014 4/26/2014 5/1/2014 7/1/2014 8/1/2014 9/5/2014 11/7/2014 12/5/2014

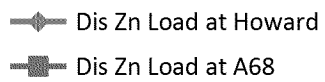










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- ◆— Dis Zn Load at Howard
  - Dis Zn Load at A68





Sample Number	Event#	Stn#	Org Name Kit#	Date	Time	Rep	Flow
<b>Howardsville</b>							
467201402070945	467.001	467	DOW	0 2/7/2014	9:45:00		1
467201403050930	467.002	467	DOW	0 3/5/2014	9:30:00		1
467201403211630	467.003	467	DOW	0 3/21/2014	16:30:00		1
467201403220930	467.004	467	DOW	0 3/22/2014	9:30:00		1
467201403251645	467.005	467	DOW	0 3/25/2014	16:45:00		1
467201403260815	467.006	467	DOW	0 3/26/2014	8:15:00		1
467201404041800	467.007	467	DOW	0 4/4/2014	18:00:00		1
467201404050900	467.008	467	DOW	0 4/5/2014	9:00:00		1
467201404091800	467.009	467	DOW	0 4/9/2014	18:00:00		1
467201404100715	467.01	467	DOW	0 4/10/2014	7:15:00		1
467201404100900	467.011	467	DOW	0 4/10/2014	9:00:00		1
467201404171830	467.012	467	DOW	0 4/17/2014	18:30:00		1
467201404180700	467.013	467	DOW	0 4/18/2014	7:00:00		1
467201404251815	467.014	467	DOW	0 4/25/2014	18:15:00		1
467201404260630	467.015	467	DOW	0 4/26/2014	6:30:00		1
467201405010945	467.016	467	DOW	0 5/1/2014	9:45:00		1
467201406061240	467.017	467	DOW	0 6/6/2014	12:40:00		1
467201407011310	467.018	467	DOW	0 7/1/2014	13:10:00		1
467201408011305	467.019	467	DOW	0 8/1/2014	13:05:00		1
467201409050900	467.02	467	DOW	0 9/5/2014	9:00:00		1
467201410020840	467.021	467	DOW	0 10/2/2014	8:40:00		1
467201411070830	467.022	467	DOW	0 11/7/2014	8:30:00		1
467201412050945	467.023	467	DOW	0 12/5/2014	9:45:00		1
<b>A68</b>							
103201402071030	103.3	103	DOW	0 2/7/2014	10:30:00		1
103201403051015	103.301	103	DOW	0 3/5/2014	10:15:00		1
103201403211715	103.302	103	DOW	0 3/21/2014	17:15:00		1
103201403221015	103.303	103	DOW	0 3/22/2014	10:15:00		1
103201403251745	103.304	103	DOW	0 3/25/2014	17:45:00		1
103201403260900	103.305	103	DOW	0 3/26/2014	9:00:00		1
103201404041845	103.306	103	DOW	0 4/4/2014	18:45:00		1
103201404051000	103.307	103	DOW	0 4/5/2014	10:00:00		1
103201404091845	103.308	103	DOW	0 4/9/2014	18:45:00		1
103201404100800	103.309	103	DOW	0 4/10/2014	8:00:00		1
103201404100930	103.31	103	DOW	0 4/10/2014	9:30:00		1
103201404171915	103.311	103	DOW	0 4/17/2014	19:15:00		1
103201404180745	103.312	103	DOW	0 4/18/2014	7:45:00		1
103201404251845	103.313	103	DOW	0 4/25/2014	18:45:00		1
103201404260715	103.314	103	DOW	0 4/26/2014	7:15:00		1
103201405011015	103.315	103	DOW	0 5/1/2014	10:15:00		1
103201406061320	103.316	103	DOW	0 6/6/2014	13:20:00		1
103201407011245	103.317	103	DOW	0 7/1/2014	12:45:00		1
103201408011215	103.318	103	DOW	0 8/1/2014	12:15:00		1

103201409051045	103.319	103 DOW	0	9/5/2014	10:45:00	1
103201410020925	103.32	103 DOW	0	10/2/2014	9:25:00	1
103201411070930	103.321	103 DOW	0	11/7/2014	9:30:00	1
103201412051045	103.322	103 DOW	0	12/5/2014	10:45:00	1

PH	&deg;C	Phen Alk	Tot Alk	Tot Hard	DO	DO Sat	Comment
6.29	1	0	34	152			
6.23	0	0	34	164			
7.66	6.5	0	32	156			Special study
7.7	2	0	34	158			Special study
7.63	8.5	0	32	154			Special study
7.59	1.5	0	34	156			Special study
7.66	5	0	34	152			Special study
7.69	1.75	0	34	140			Special study
7.64	6	0	34	128			Special Study
7.59	1	0	36	132			Special study
7.69	1	0	34	134			Special study
7.58	9.5	0	30	124			Special study
7.67	1	0	32	122			Special study
7.68	6	0	28	94			Special study
7.69	2	0	26	88			Special study
7.63	3	0	30	120			Special study
7.52	9	0	18	48			
8.09	11.5	0	22	66			
7.8	12	0	28	96			Turbid, raining past 3 days
7.76	7	0	34	132			
7.62	1.5	0	32	104			September rain and snow
7.66	1	0	36	130			low flow nutrient
7.16	1	0	32	138			
6.18	0.5	0	34	184			
6.13	0.5	0	34	90			
7.44	4.5	0	28	188			Special study
7.5	1	0	30	188			
7.46	6	0	28	194			Special Study
7.54	1	0	28	190			Special study
7.42	3.5	0	30	176			Special study
7.41	1.75	0	30	200			Special study
7.47	5	0	26	148			Special study
7.68	0.5	0	28	136			Special study
7.53	1	0	30	156			
7.38	7	0	26	148			Special study
7.38	1	0	32	138			Special study
7.55	6	0	28	98			Special study
7.56	2	0	26	92			Special study
7.53	2.5	0	28	132			Special study
7.52	9	0	20	54			
8.12	10.5	0	22	70			
7.79	11.5	0	30	102			Turbid, raining past 3 days

7.72	9.5	0	36	138
7.61	2	0	32	100
7.64	2.5	0	36	142
7.04	2	0	36	154

September Rain and snow